

- (b) from about 0.5% to about 35% crystallizing lipid.

In one embodiment, the filling is a cheese filling comprising:

- (a) at least 20% lipid, wherein said lipid comprises:
- (1) from about 20% to about 100% non-digestible lipid; and
 - (2) from about 0% to about 80% digestible lipid;
- (b) from about 0.5% to about 35% crystallizing lipid;
- (c) from about 20% to about 75% dehydrated cheese powder; and
- (d) from about 0% to about 55% bulking agent.

ANALYTICAL METHODS

Parameters used to characterize elements of the present invention are quantified by particular analytical methods. These methods are described in detail as follows. (All laboratory instruments should be operated according to manufacturers' instructions, as set forth in the instrument operation manuals and/or other instructional materials, unless otherwise indicated.)

1. FAT CONTENT

The method used to measure total fat content (both digestible and non-digestible) herein is AOAC 935.39 (1997).

DIGESTIBLE FAT CONTENT

Digestible lipid (NLEA) method AOAC PVM 4:1995 is used to determine the digestible fat content.

NON-DIGESTIBLE FAT CONTENT

Non-Digestible Fat Content = Total Fat Content - Digestible Fat Content

Olestra-Containing Foods - Digestible Fat and Saturated Fat: The content of total digestible fat and total digestible saturated fat of a food is measured according to the published AOAC peer-verified method for quantifying fat in olestra-containing snack foods (AOAC Peer-Verified Method PVM 4:1995, "Capillary Gas Chromatographic Determination of Fat in Olestra Savory Snack Products", AOAC International, Gaithersburg, MD).

2. MOISTURE CONTENT

The moisture content can be determined by a forced air oven volatiles method as follows:

5 Equipment:

Forced air oven, aluminum tins with lids, Cabinet-type desiccator

Procedure:

1. Weigh tin and lid to 0.0001 grams and record weight as tare weight
2. Place 2-3 gram ground sample into tin, weigh to 0.0001 grams and record as gross weight
3. Set oven temperature to 105°C
4. Place tin containing the sample in oven for 1 hour, uncovered
5. Remove tin containing the sample from the oven, cover the tin, and place in desiccator until cooled to room temperature
6. Weigh tin, lid and dried sample to 0.0001 grams and record as final dried weight

Calculations:

1. Sample weight = gross wt. - tare wt.
2. Final weight = weight recorded in step 6
3. Moisture Content (%) = [(gross wt - final wt.)/sample wt] x 100.

3. WATER ACTIVITY (A_w)

The water activity is defined as the ratio $A_w = p/p_o$, where p represents the actual partial pressure of water vapor and p_o the maximum possible water vapor pressure of pure water (saturation pressure) at the same temperature. The A_w level is therefore dimensionless; pure water has a level of 1.0, and a completely water-free substance has a level of 0.0. The relationship between the equilibrium relative humidity ERH in a food and the water activity is $A_w \times 100 = \text{ERH}$.

Instrument

Conductivity humidity meter Rotronic Hygroskop DT (model WA-40 TH) with an operational temperature range from 0 to 100C, and 0 to 100 % RH.

Method

1. Weigh ~5 grams of the sample and transfer it into a plastic bag.
2. Break the sample into small pieces with a flat object.
3. The samples to be measured are placed in small polystyrene dishes in the bottom half of the measuring station.
4. Maintain the temperature constant by setting the equipment in a constant room temperature, or by using a water bath connected to the cells.

5. Wait until the reading of A_w does not change anymore (reading is stable). A red light from the panel will indicate that the instrument is still reading a decrease or increase in value for A_w .
6. Remove the dish with the sample from the chamber and measure moisture content.

4. VIBRATION TEST

An MTS 840.03E Vibration Test System simulates rough handling of sandwich crackers and is used to analyze the adhesion properties of sandwich crackers. MTS Systems Corporation in Minneapolis, MN manufactured this particular unit in 1983.

First, 184 to 190 grams (6.5 ounces) of sandwich crackers are randomly placed into a bag. The bag is 6.375" by 10.000" and is presealed at the bottom. The outer surface of the bag is 100 gauge oriented polypropylene. Sixty gauge metalized polyester comprises the inner layer. A layer of polyurethane-based adhesive resides in the middle of the two layers and binds them together. Five bags of Ritz Bits sandwich crackers are filled. For cheese flavor, the Ritz Bits used are code 1040AX13 or equivalent. Peanut flavored Ritz Bits are code 1050AX23 or equivalent. Five bags of test sandwiches are also filled. The open end of the bags is then heat sealed.

These ten bags are then placed into cartons. The cartons are 6.125" by 1.875" by 8.000" (L x W x H) and are made of paperboard. The top and bottom flaps are sealed with RESYN® adhesive from National Starch and Chemical Company. RESYN® is a formulated copolymer emulsion adhesive and secures the flaps. The bags are placed into the cartons and the flaps are secured.

The cartons are placed into a cardboard box that is 9.500" by 12.375" by 8.125" (L x W x H). These dimensions allow for the cartons to be arranged in a 5 by 2 matrix. An alternating pattern of Ritz Bits and test cartons eliminates the uncertainty caused by the position within the box.

The box is closed and secured with packing tape. The shipping box is placed on the vibration table and restrained so it can not move horizontally. The box vibrates with an acceleration of 1.25g (12.3 m/s²) at 4.5 Hz. After exactly 8,100 vibrations, the table stops and the individual cartons are carefully opened and counted.

A separated cracker is defined as one in which the base cakes are no longer attached to each other. The separation can occur between the base cake and filling, in the middle of the filling, or a combination of both. A cracker which has separated into two or more